Edward

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

PUBLIC HEALTH SERVICE

Communicable Disease Center
Laboratory Branch
P. O. Box 185
Chamblee, Georgia

Refer to:

September 24, 1958

Dr. J. Lederberg
Department of Genetics
University of Wisconsin
Madison 6, Wisconsin

Dear Dr. Lederberg:

Many thanks for taking the time to write concerning transduction. As you say, our technique probably is unnecessarily elaborate. We got into the habit of doing this when we were working with various phages, many of which had inadequate or marginal titres.

I am sure one of our troubles is failure to grow phages to sufficient titres. We have always had trouble with this problem and in trying to repeat the work of others in obtaining high titred phage after 6 hours incubation we invariably have failed. I realize, of course, that we are doing something wrong, probably proportions of phage and bacteria but we have not attacked this problem systematically. Rather, we have resorted to other methods. Just now I'm working with PLT22 grown in semisolid layer plates which has a very good titre and using a nonmotile S. paratyphi B which previously yielded motile forms as a control.

Probably the cultures with which I am working have something to do with our failures. I was concentrating on three strains, one of which should be a S. paratyphi B that would yield motile forms. The other two were "S. gallinarum var. duisburg" which probably are not S. gallinarum at all but which might prove very stubborn. If my present experiment is negative but the control positive, I shall try using the three strains as antigen donors. All are fully susceptible to PLT22.

Another circumstance which has disturbed me is the apparent development of virulent mutants in PLT22. They may always have been there but I had not noticed them. Now the phage is giving a rather large proportion of perfectly clear plaques. I suppose I should try to reisolate the typical symbiotic form. One of our troubles is that we do not have a great deal of time to devote to work of this sort.

With many thanks and kindest regards to both you and Esther, I am

Sincerely yours,

P Ed

Philip R. Edwards, Ph. D.
Chief, Enteric Bacteriology Unit
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P.S. I can now tell you that the trouble was in the bugs. The new phage (2 x 10^{11}) motilized every tube of a S. paratyphi B known to be capable of mobilization. I shall now try transduction of H antigens to LT2 from these strains. Also I am going to try your loop method on some small plates.

Joshua - I've gone over various papers including Stocker, Zinder, & Lederberg (1953). In none of these is there a clear exposition of methods used in transduction - number & age of organisms etc. This is something you should publish sometime for the benefit of a lot of us duffers - otherwise we do it the hard way, as we have done.

Again, many thanks